

# FLASHPOINTS

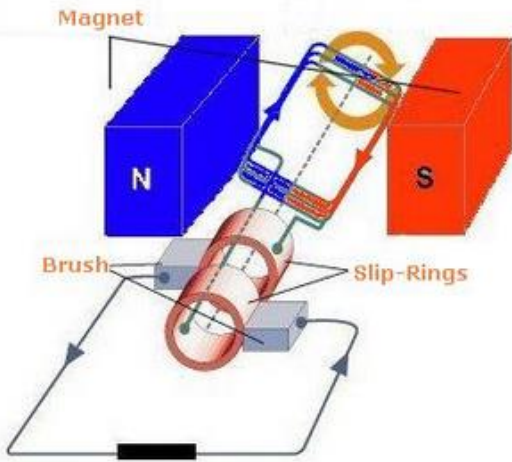
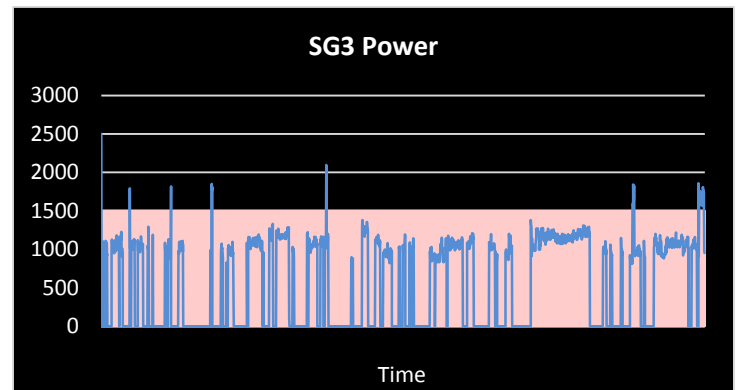
DATA-DRIVEN SOLUTIONS THAT IGNITE CUSTOMER SUCCESS.

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## Cat® ASSET INTELLIGENCE DETECTS ENGINE LIGHT LOADING

### What Happened?

Cat Asset Intelligence uses advanced analytics to qualify raw data into actionable information. Hundreds of thousands of raw data values for each asset are evaluated against a tailored set of rules and intelligently converted into much smaller representative sets of data. Algorithms then determine whether the criteria is met for a fault condition to exist, all without human interaction in the loop. An Cat Asset Intelligence Fleet Advisor was notified by the system that the diesel generators on a single vessel have been light loaded on a consistent basis. Further exploration of the data proved that this was a fleet-wide issue present in 45 units overall.



### What Was the Underlying Cause?

Cat Asset Intelligence engineering experts note that generators are often operated in ways that minimize the chances of a vessel completely losing power, especially during times of restricted maneuverability in order to decrease risk of collision with other objects or the ground. This leads to frequent light loading of the generators. However, light loading generators decreases the life span of the engines significantly and can cause severe damage to pistons, piston rings, piston connecting rods, and/or the cylinders themselves.

### What Was the Value to the Customer?

The fleet advisor can use real time data to determine the number of generators needed online at any given moment. As a result, generators would spend less time in a "light loaded" state. It is suggested that for every 2500 kW of demanded power, one generator should be online. Using the data, Asset Intelligence engineers discovered that during the past 6 months, according to the power demand, no more than two generators were ever needed online at once. However, three or four generators had been online more than 92% of the time. Using the data available through the system, a fleet advisor is able to determine the total power demand at any given time. The type of damage that can be caused by consistent light-loading can result in the need for a complete top-end rebuild costing upwards of \$78,000. If all 45 units continue to operate in light-loaded conditions, top-end rebuilds can be assumed for all units, resulting in \$3,510,000 in rebuilds alone.

